ABSTRACT

Disclosed is a $12CaO \cdot 7Al_2O_3$ compound, a $12SrO \cdot 7Al_2O_3$ compound, or a mixed crystal compound of $12CaO \cdot 7Al_2O_3$ and $12SrO \cdot 7Al_2O_3$, which contains a negative hydrogen ion (H^-, H^{2-}, H_2^-) at a concentration of 1×10^{18} cm^{-3} or more. A negative hydrogen ion comprising a primary component of a hydride ion is incorporated into C12A7 ($12CaO \cdot 7Al_2O_3$), so that a function of being converted from an insulative material to an electrically conductive material in a sustained manner by means of irradiation with light can be exhibited even in the normal atmosphere at a room temperature. The present invention also provides a solid electrolyte capable of conducting a negative hydrogen ion, and means for releasing a hydride ion from the inside of a solid into a gaseous phase using an electric field.